SECTION VII.—WEATHER AND DATA FOR THE MONTH.

THE WEATHER OF JUNE, 1917.

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[Dated: Weather Bureau, Washington, Aug. 1, 1917.]

PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure over the United States and Canada, and the prevailing direction of the winds for June, 1917, are graphically shown on Chart VII (XLV—57), while the means at the several stations, with the departures from the normal, are shown in Tables I and III.

At the beginning of the month relatively low pressure prevailed over the Lakes region and in the Southwest, but elsewhere pressure was near the normal. From the 1st to 8th several low-pressure areas moved from the far Southwest to the Great Lakes and eastward, and relatively high pressure predominated in the Southeast and Northwest. For the next several days the pressure was low throughout the eastern half of the country, but about the 16th a HIGH area of some magnitude overspread the East generally and pressure above the normal obtained for several days. During the second half of the month an occasional area of relatively low pressure moved from the far West eastward across the country, but during much of the time the prevailing pressure over most sections was above the normal.

The month closed with low pressure in the Northeast, and in the central and northern portion of the Great Plains States; while in the Southeastern States and west of the Rocky Mountains, except in the far Southwest, it was decidedly above the average.

For June as a whole the barometric pressure averaged above the normal over the entire country, except at a few stations near or in the upper Mississippi Valley where it was slightly below normal. The departures from the normal were generally small, although somewhat pronounced in the northern Plateau and northern Pacific regions.

The distribution of the HIGHS and LOWS was generally favorable for southerly winds in most sections from the Great Plains States eastward, while along the Pacific coast they were generally from the north. Elsewhere variable winds prevailed.

TEMPERATURE.

The unseasonable and almost continuous cool weather that had been experienced over practically the entire country since the last week in April continued in most districts during the first two decades in June, during which time some of the lowest temperatures ever experienced in that month were recorded. Temperature conditions for this period are considered in detail on pages 285–289 of this issue of the REVIEW.

During the last decade of the month the temperature was generally above the normal in almost all southern and central districts; but in the North and particularly in the region of the Great Lakes, it continued cool.

For the month as a whole the temperature was below the normal throughout the country except locally along the Atlantic coast and over most of the Southern States from the Atlantic to the Pacific, including California and portions of Nevada and central Oregon, where it was somewhat above the average. Over the northern districts from central New York to central Washington and as far south as southern Kentucky and Missouri, the average temperature for the month ranged from 3 to 6 degrees below the normal.

PRECIPITATION.

June opened with general showers over most of the eastern part of the country, and also in the central districts as far west as eastern Utah. During the next several days rather heavy rain fell in much of the corn belt and in the cotton region, except near the Gulf coast and in western and southern Texas where rain was greatly needed. From the 6th to the 12th considerable rain fell practically everywhere east of the central Plains States, except in the southern portions of the Gulf States. Heavy rains occurred over most of New England and westward to eastern Nebraska. There were many reports from the latter section that the ground was too wet to work. From the 12th to the 19th little or no rain fell in many sections of the country; but in much of the Carolinas, Florida, and most districts near the Gulf coast as far west as western Louisiana liberal rains occurred, while moderate amounts fell in most of Iowa, northern Illinois, parts of Ohio, and over practically all the Lakes region and North Atlantic States.

During the remainder of the month the rainfall was irregularly distributed, although in most sections east of the Mississippi River the falls were ample, the amounts being especially large in western Pennsylvania, southwestern New York, eastern North Carolina, southern Ohio, eastern Michigan, and from central Illinois to eastern Nebraska.

The month closed with generally fair weather, except along the Atlantic coast and in the upper Mississippi Valley and far Northwest, where light to moderate rains prevailed.

For the month as a whole the precipitation was heavy in parts of New England, New York, Pennsylvania, the Carolinas, and Florida, and also in central portions of Ohio, Indiana, and Illinois, the greater part of Iowa, eastern Nebraska, southern Michigan, and central Arkansas. Elsewhere in the eastern half of the country moderate falls occurred, except in portions of the eastern Gulf States, where they were light. Throughout the western Gulf States the fall was generally less than 1 inch, and at points in Mississippi and Louisiana the month was one of the driest of record and much damage to crops resulted. From the Great Plains westward the precipitation was likewise light and below the normal, the

month's total being generally less than half an inch except in the more northern localities, and over large areas no rain occurred.

RELATIVE HUMIDITY.

The relative humidity for the month as a whole was above the normal over the northern half of the country from the Mississippi Valley eastward and in Washington and the southern portion of California and Arizona. Elsewhere humidity was generally below the average for June, especially in the Plains States and portions of central California where the deficiency ranged from 10 to 30 per cent.

GENERAL SUMMARY.

The weather for June as a whole was favorable for crop development, except in the South and Southwest, where lack of moisture prevented plant growth, and in the Northwest where the cool weather delayed advancement.

Winter wheat made excellent progress generally and the weather was favorable for harvesting in the southern and central districts. The growth of spring wheat was somewhat backward, but it made good progress during the latter part of the month. The weather was generally unfavorable for corn, cotton, and some truck crops until the latter part of the month, when warmer weather and well-distributed rainfall caused much improvement in the condition of these crops.

Pastures and ranges were generally in good condition, except during the latter part of the month in portions of the Plains States and western Texas, where rain was much needed.

Some injury to fruit resulted from frosts in the Northwest and from wind and hail in portions of the Mississippi Valley. However, at the end of the month the outlook for fruit was good.

SEVERE LOCAL STORMS.[1]

The following notes of severe storms have been extracted from reports by officials of the Weather Bureau:

Arkansas.—A tornado passed 2 miles south of Harrison at 10:30 a. m. June 5. The path was about 75 yards wide and 4 miles long. Property destroyed was worth about $15,000. On June 6 between 7 and 10 p. m. a tornado moved from Wrightsville to Olena, a distance of about 50 miles. Property loss about $73,000. During the night of June 7 a tornado occurred near Uniontown. Two people were killed and property damage about $4,000. A severe hailstorm on June 8 destroyed crops and damaged buildings near De Queen.

Kansas.—Ten tornadoes are known to have occurred in Kansas during June, 1917, causing the death of 18 persons and the destruction of property valued at about $1,220,000. All occurred in the eastern third of the State—four in the late afternoon or evening of the 1st, five late in the afternoon of the 5th, and one in the early night of the 12th.

The first formed 4 miles west of Coffeyville at 5:05 p. m. of the 1st and moved easterly, devastating a large section of that city. Three persons were killed, a dozen injured, and the property loss amounted to about $500,000. Its path was from 600 to 800 feet wide and it ended 5 miles northeast of the city.

At 6 p. m. June 1 a tornado formed about a mile southwest of Pomona, passing over that town and disappearing 9 miles to the northeast, The path was about a quarter of a mile wide. Two persons were injured and property valued at $15,000 destroyed. Baldwin, 17 miles northeast of Pomona, was visited by a severe windstorm at 6:30 p. m. the same day, which was probably the remnant of the Pomona storm. Damage, about $200.

About 7:30 p. m. on June 1 a tornado formed 3½ miles southwest of Morse and moved northeast into Missouri. The path was about 80 rods wide and 25 miles long. Four persons were killed, two injured, and property damaged to amount of about $10,000.

About 5 p. m. June 5 a tornado formed 5 miles southwest of Clinton and traveled 15 miles northeast. Its path was a quarter of a mile wide. One person was killed, six or eight injured, and practically all of the village of Clinton and a great many farmhouses and residences were destroyed; much stock was killed and several fine orchards ruined. Estimated loss, $50,000.

A tornado formed 3 miles northwest of Troy about 5:45 p. m. June 5 and moved southeast for 2 miles, then east for about 2 miles. Damage by wind, about $15,000, and by heavy rain, about $20,000.

At 6 p. m. June 5 a tornado formed 2½ miles northeast of Shaw and moved northeastward. Its path was 300 yards wide and 15 miles long. One person was killed, one injured, and property damaged to amount of $30,000.

At 6 p. m June 5 a tornado formed near Montana, Kans., and moved northeastward. The path was from 100 to 200 feet wide and 10 miles long. Estimated damage, $7,000.

At 6:15 p. m. June 5 a tornado formed half a mile southwest of Pomona and moved northeastward. Its path was about 40 miles long and 1 mile wide. Property loss, about $10,000.

A tornado formed 9 miles southwest of Eskridge late in the afternoon of June 5, moved northeastward, passing half a mile southeast of that place. It then lifted for about 5 miles, when it again descended with increased intensity. The greatest destruction and loss of life due to the storm occurred in the next 8 miles of its path. All buildings near its center were literally torn to pieces and blown away. The storm struck the little town of Elmont, 8 miles northwest of Topeka, and destroyed or damaged every building. Nine persons were killed and property lost to amount of $500,000. This storm was preceded throughout its course by heavy hail. At Eskridge stones are reported to have fallen that were 14 to 15 inches in circumference and weighed 3 and 4 pounds.

On June 12 between 8:30 and 9 p. m. a tornado formed a few miles northeast of Louisville, Kans., and traveled toward the southeast. Its path was about a fourth to a half mile wide and 15 miles long. Seven persons were injured, a number of residences and barns demolished, and orchards and shade trees blown down. Damage estimated at $75,000. At the same time this tornado was raging a windstorm caused considerable damage at St. Marys, 9 miles east, but it could not be established that this storm was a tornado.

A severe hailstorm, accompanied by high wind and excessive rainfall, swept over portions of Jewell, Mitchell, and Cloud Counties during the early morning of June 5, the hailstones in some sections being as large as hens' eggs, The more severe part of the storm covered about 40 square miles, causing total ruin of thousands of acres of growing crops and the destruction of fine orchards. Stock were killed and barns and buildings blown down.

[1] See also the detailed discussion of the tornadoes of May 25 to June 6, inclusive, with Charts XLV-59 to 67, inclusive, by Prof. H. C. Frankenfield, on pp. 291-298 of this issue.

A severe hailstorm occurred at Dodge City and vicinity from 2:15 to 2:30 p. m. June 5. The hail covered the lawn of the Weather Bureau a foot deep. Some of the stones were as large as a hen's egg. Much damage resulted to windows, gardens, and crops. Nearly every residence on streets running north and south had windows broken. Many gardens and crops were completely destroyed. Damage estimated between one and two million dollars.

Michigan.—A tornado swept through Calhoun, Jackson, Washtenaw, and Wayne Counties during the afternoon of June 6. Four persons were killed, 50 injured, and the property loss was estimated at about $1,000,000.

Missouri.—A tornado swept across Boone County on the night of June 5, moving northeastward, causing 18 deaths and property loss between $400,000 and $600,000.

North Dakota.—Three tornadoes occurred in the vicinity of Judson on June 10. The first about 4:30 p. m., and the other two simultaneously about 5 p. m.; damage nominal. Another severe wind storm appeared 2 miles southeast of Bismarck about 6 p. m. the same date; damage slight.

Pennsylvania.—About 7:30 p. m. June 23 a tornado, accompanied by hail, passed over Saegerstown, moving from the southwest. Many trees were uprooted or broken off, a number of barns were unroofed or completely demolished, and a few farmers were hurt by falling timbers. The storm seemed to have touched only in spots as at places trees 2 feet and over in diameter were twisted off or uprooted, while in other portions of the track small trees and light sheds were not injured.

Tennessee.—A heavy windstorm blew down several small buildings at Milan about 11 p. m. June 1. A severe storm passed through the northern part of Shelby County about 10:30 p. m., on June 8, causing considerable destruction over a path from one-half to 1 mile wide and several miles long. Three people were killed and property valued at $100,000 destroyed. A wind and hail storm from one-half to three-quarters of a mile wide crossed Robertson County during the afternoon of the 20th, causing serious damage to crops.

Wisconsin.—A severe storm occurred in the vicinity of Milwaukee during the night of June 22–23. It was accompanied by hail and the rainfall was the heaviest on record at that station, 5.76 inches in 24 hours. Fifteen people were injured and about 400 families driven from their homes in Menomonee Valley; property loss about $500,000.

Georgia.—On June 3 a destructive hailstorm occurred over portions of Houston, Crawford, Twigg, and Bibb Counties. Hail the size of hens' eggs covered the ground to a depth of 3 inches or more in places; peach trees were stripped of their fruit, and corn, cotton, and gardens badly damaged; estimated loss, $200,000.

LATE ICE IN LAKE SUPERIOR.

In the special paper on the cold spring of 1917, appearing on p. 285 of this REVIEW, reference is made to the late breaking up of the ice in Lake Superior and the northern straits. Further reports show that ice was present in the harbor at Marquette as late as June 26, and ice fields were encountered in the lake as late as the end of the month.

Average accumulated departures for June, 1917.

Districts.	Temperature.			Precipitation.			Cloudiness.		Relative humidity.	
	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan 1.	General mean for the current month.	Departure from the normal.	General mean for the current month.	Departure from the normal.
	°F.	°F.	°F.	In.	In.	In.	0-10		P. ct.	
New England	62.2	−1.4	−12.3	5.60	+2.60	+0.70	6.3	+1.0	83	+4
Middle Atlantic	69.5	−0.7	−4.7	4.21	+0.60	−1.80	5.6	+0.5	74	+1
South Atlantic	75.9	−0.3	+5.4	4.59	+0.30	−4.60	4.8	−0.2	75	−2
Florida Peninsula	80.3	−0.1	+3.0	4.57	−2.30	−7.50	5.8	+0.7	75	−3
East Gulf	78.0	−0.3	+4.1	2.29	−2.30	−2.10	4.0	−1.0	67	−8
West Gulf	79.4	+0.4	+1.9	1.68	−2.00	−7.90	3.1	−0.8	67	−7
Ohio Valley and Tennessee	70.3	−2.8	−9.2	4.41	+0.20	+2.40	5.1	+0.1	71	0
Lower Lakes	63.5	−3.5	−17.1	4.78	+1.20	+1.30	6.0	+1.1	76	+5
Upper Lakes	57.7	−4.8	−21.3	4.19	+0.90	−1.00	6.0	+0.9	77	+4
North Dakota	60.7	−3.0	−15.1	1.93	−1.80	−4.70	4.3	−0.8	60	−9
Upper Mississippi Valley	67.4	−3.5	−15.9	5.43	+1.10	+0.10	5.4	+0.4	72	+2
Missouri Valley	68.8	−2.1	−7.8	3.18	−1.20	−0.90	3.7	−1.3	63	−4
Northern slope	59.1	−3.0	−20.5	1.45	−0.90	+0.10	4.1	−0.7	56	−4
Middle slope	71.7	−0.1	−6.1	1.20	−2.00	−3.70	2.8	−1.2	51	−10
Southern slope	78.0	+0.8	+0.7	0.70	−0.20	−2.90	2.2	−1.6	39	−19
Southern Plateau	75.5	+0.7	−10.9	0.10	−0.30	−0.90	1.2	−0.8	28	−3
Middle Plateau	65.2	−0.5	−32.5	0.10	−0.40	−0.90	1.2	−2.1	33	−5
Northern Plateau	61.3	−3.6	−23.7	0.52	−0.60	−0.60	4.0	−0.5	47	−5
North Pacific	56.5	−1.1	−13.3	2.05	0.00	−4.50	5.4	−0.6	76	0
Middle Pacific	62.9	+0.3	−10.2	0.00	−0.40	−6.20	1.4	−1.7	55	−9
South Pacific	68.5	+2.4	−4.5	0.00	−0.10	−2.30	1.9	−1.3	61	−5

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WEATHER CONDITIONS OVER THE NORTH ATLANTIC DURING JUNE, 1916.

The data presented are for June, 1916, and comparison and study of the same should be in connection with those appearing in the REVIEW for that month. Chart IX (XLV–58) shows for June, 1916, the averages of pressure, temperature, and the prevailing direction of the wind at 7 a. m., 75th meridian time (Greenwich mean noon). It was found impracticable to draw any storm tracks on the chart, as the atmospheric depressions during the month were, for the most part, of light intensity and their movements were too uncertain to plot accurately.

PRESSURE.

June is generally a month of comparatively weak atmospheric circulation with slight pressure gradients. For that month in 1916 these conditions were even more marked than usual, though the distribution of the mean monthly pressure did not differ much from the normal. The North Atlantic, or Azores HIGH, with a crest of 30.19 inches, was not far from the position shown on the normal chart, although it was somewhat larger in area but of less intensity. A low-pressure area with a minimum reading of 29.77 inches was central near the southern coast of Norway. The mean monthly pressure west of the 60th meridian was remarkably uniform, no HIGHS or LOWS appearing in that territory. In the northeastern part of the ocean there was considerable variation in the average pressure for the three decades of the month, and while the barometric readings for the second decade were higher than for the first and third, over all the territory between the 60th and 65th parallels, and

the 10th meridian, east longitude, and the 25th west longitude, the difference was more marked in the western part than in the eastern, as the following figures will show. In the 5-degree square between latitides 60°–65°, longitudes 20°–25° west, the mean for the first decade was 29.93 inches; for the second, 30.27 inches; and for the third, 29.88 inches. In the square between latitudes 60°–65°, longitudes 5°–10° east, the means were: First decade, 29.62 inches; second, 29.94 inches; and third, 29.88 inches.

In the northwest quadrant of the Azores HIGH, the pressure for the last decade was considerably higher than during either of the others; in the square between latitudes 40°–45°, longitudes 30°–35°, the average for the first decade was 30.07 inches; for the second, 30.01 inches; and for the third, 30.28 inches. In mid-ocean and along the North American coast there was comparatively little difference in the readings for the three decades, and in southern waters the variation during the month was even less.

GALES.

Under normal conditions June is freer from gales than any other month, as the highest normal percentage for any one 5-degree square is 7, which characterizes a number of squares between the 50th and 60th parallels and the 25th and 40th meridians. During June, 1916, gales were not observed on more than one day in any one square, with the exception of that between latitudes 40°–45°, longitudes 40°–45°, where they were reported on two days, a percentage of 6. On June 1 there were two fairly well developed areas of low pressure over the western division of the ocean. The first LOW was central near Sydney, C. B. I., and the second near latitude 42°, longitude 34°. The barometric readings at their centers were 29.76 inches and 29.82 inches, respectively, with a ridge of high pressure between; the winds were from light to moderate, and fog occurred off the Banks of Newfoundland. On the same day a third LOW of limited area surrounded the Shetland Islands, although its center could not be accurately located on account of lack of observations. On June 2 the conditions over the western division had changed but little, as the two LOWS remained in practically the same position and without change in intensity and extent, while the ridge of high pressure had developed into a closed area, with a crest of 30.20 inches. The third LOW of June 1 had moved about 10 degrees nearly due east, with its center on the west coast of Norway, near the 62d parallel. One vessel in the vicinity of the Shetland Islands reported a westerly gale of 48 miles an hour, while in the southerly quadrants the winds were from moderate to fresh. The LOW last mentioned moved rapidly toward the northeast, and on the 3d the center was apparently somewhere near Bodo, Norway. On the 3d the pressure was considerably above the normal over that part of the ocean between the 30th and 50th parallels, although a LOW of light intensity was central near Colon, Canal Zone. On the 4th a LOW surrounded Quebec, Canada, where the barometer reading was 29.58 inches; while a second area of low pressure covered the west coast of Scotland, extending as far west as the 10th meridian, west longitude. A few vessels some distance from the center of these LOWS reported winds with a maximum velocity of 40 miles an hour, but in mid-ocean the winds were from light to moderate.

The first LOW moved toward the northeast, and on the 5th the center was near Father Point, where the barometer reading was 29.58 inches; no heavy winds were encountered, but fog prevailed in the southeast quadrant. The second LOW remained in the vicinity of the North Sea from the 5th to the 15th, and during that period the center moved back and forth between the 10th meridian, east longitude, and that of Greenwich. On the 7th this LOW was central near the northeast coast of Scotland, and three vessels between that point and the 20th meridian, west longitude, reported northerly gales of from 40 to 50 miles an hour. On the 9th a fairly well developed LOW, with a minimum barometric reading of 29.76 inches, was central near latitude 42°, longitude 42°, moderate to light winds prevailing. This LOW moved in a northeasterly direction, and on the 10th the center was near latitude 48°, longitude 37°. One vessel in the eastern and two in the southwestern quadrants experienced gales of from 40 to 55 miles an hour, while near latitude 38°, longitude 49°, northerly winds of gale force were reported, the barometric readings in the vicinity ranging from 30.09 to 30.20 inches. From the 10th to the 13th the easterly drift of the LOW was slight, as on the latter date the center was near latitude 36°, longitude 28°, light to moderate winds being the rule during that period.

On the 16th a LOW was central a short distance off the coast of Spain, and three vessels in the northern quadrants reported moderate to strong easterly gales. This LOW remained practically stationary during the next 24 hours; between the 17th and 18th it moved slowly toward the coast, as on the latter date the center was near Balboa, Spain. On the 18th a second LOW of limited extent was central near latitude 40°, longitude 38°. On the 19th it was in practically the same position, and westerly gales were encountered by two vessels 5 degrees south of the center. From the 20th to the 22d an area of low pressure covered the Gulf of St. Lawrence, attended by light to moderate winds, while fog occurred on the first date. On the 23d the center of this disturbance was near St. Johns, Newfoundland, the conditions of wind and weather having changed but little. On the 22d and 23d a second LOW, also of slight intensity, covered a large area between the west coast of Scotland and the 20th Meridian. By the 24th it was central near Glasgow and had contracted somewhat in extent, while the winds remained light to moderate. This disturbance then curved toward the north, and on the 25th surrounded a small area off the north coast of Scotland, the general conditions being about the same as on the 24th. The depression then increased in extent and decreased in intensity, and from the 26th to the 30th occupied a large part of the territory between the 15th Meridian, west longitude, and the coast of continental Europe, between the 50th and 65th parallels. On the 28th a shallow trough of low pressure extended along the coast of the United States and Canada, between the 40th and 50th parallels, light winds and considerable fog prevailing. By the 29th this trough had become a well-defined closed area of low pressure with its center about 150 miles southeast of Halifax; it then moved in a northeasterly direction, and on the 30th covered a small portion of the Gulf of St. Lawrence and the western part of Newfoundland, light to moderate winds prevailing.

TEMPERATURE.

The average temperature of the air over the ocean during June, 1916, was considerably above the normal in mid-ocean, north of the 35th parallel, and also in a lesser degree in the waters adjacent to the European coast. In southern waters and the Gulf of Mexico, the temperatures

were near the normal while along the American coast, north of the 30th parallel there were negative departures, the same conditions holding true, at a number of Canadian and United States Weather Bureau stations on the Atlantic and Gulf coasts, as shown in the following table:

	°F.		°F.
St. Johns, N. F.	+1.6	Norfolk, Va.	−2.3
Sydney, C. B. I.	+0.4	Hatteras, N. C.	−0.5
Halifax, N. S.	−0.6	Charleston, S. C.	−0.5
Eastport, Me.	−0.9	Key West, Fla.	−0.2
Portland, Me.	−4.4	Tampa, Fla.	+0.6
Boston, Mass.	−3.2	Mobile, Ala.	+0.5
Nantucket, Mass.	−1.7	New Orleans, La.	+2.0
Block Island, R. I.	−2.1	Galveston, Tex.	+0.1
New York, N. Y.	−4.3	Corpus Christi, Tex.	+1.3

The lowest individual temperature reading recorded by any vessel during the month was 46° F., which occurred on a number of days in the 5-degree square between latitudes 55°–60°, longitudes 40°–45°, and also in the waters adjacent to the coast of Labrador and in the Gulf of St. Lawrence.

FOG.

The greatest amount of fog during the month occurred in the square between latitudes 40°–45°, longitudes 60°–65°, where it was reported on 16 days, a percentage of 53, while the normal is approximately 35. Off the Banks of Newfoundland, where the normal percentage ranges from 60 to 65, fog was observed on only 7 days during the month under discussion, a percentage of 23, while it was also somewhat below the normal over the eastern portion of the steamer lanes.

Winds of 50 miles per hour (22.4 m./sec.), or over, during June, 1917.

Station.	Date.	Wind.		Station.	Date.	Wind.	
		Velocity.	Direction.			Velocity.	Direction.
		Mls./hr.				*Mls./hr.*	
Bismarck, N. Dak.	10	50	sw.	Mount Tamalpais,			
Do.	13	50	nw.	Cal.	25	52	nw.
Buffalo, N. Y.	3	65	sw.	Do.	27	68	nw.
Do.	7	54	w.	Do.	28	66	nw.
Do.	13	68	sw.	Do.	29	58	nw.
Do.	26	58	sw.	New York, N. Y.	8	50	nw.
Do.	29	56	sw.	Norfolk, Va.	1	64	w.
Charlotte, N. C.	21	60	nw.	North Head,			
Cheyenne, Wyo.	7	50	w.	Wash.	23	72	se.
Do.	11	65	w.	Pittsburgh, Pa.	23	64	nw.
Chicago, Ill.	12	50	w.	Point Reyes Light,			
Cleveland, Ohio.	23	58	nw.	Cal.	1	50	nw.
Concordia, Kans.	5	50	n.	Do.	2	51	nw.
Dallas, Tex.	8	62	s.	Do.	3	59	nw.
Dodge City, Kans.	5	52	nw.	Do.	4	60	nw.
Drexel, Nebr.	22	56	nw.	Do.	9	60	nw.
Duluth, Minn.	6	52	ne.	Do.	10	60	nw.
Flagstaff, Ariz.	10	50	w.	Do.	11	66	nw.
Grand Forks, N. Dak.	16	51	ne.	Do.	20	61	nw.
				Do.	21	62	nw.
Helena, Mont.	1	50	sw.	Do.	22	57	nw.
Lexington, Ky.	1	60	sw.	Do.	23	53	nw.
Memphis, Tenn.	1	50	nw.	Do.	25	51	nw.
Do.	8	56	nw.	Portland, Me.	17	(*)	nw.
Mount Tamalpais,				Raleigh, N. C.	8	53	w.
Cal.	2	57	nw.	Richmond, Va.	24	60	nw.
Do.	9	84	nw.	St. Paul, Minn.	13	52	nw.
Do.	16	54	nw.	Sioux City, Iowa.	22	85	w.
Do.	17	50	nw.	Springfield, Mo.	1	60	se.
Do.	18	62	nw.	Topeka, Kans.	5	60	sw.
Do.	19	56	nw.	Wichita, Kans.	4	54	sw.
Do.	20	72	nw.	Do.	5	70	nw.
Do.	21	68	nw.	Williston, N. Dak.	9	50	nw.
Do.	23	79	nw.				

* Wind records at Portland, Me., have been in error for some months; a table of correct readings is being prepared.—EDITOR.